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(19) (CA) APPLICATION FOR CANADIAN PATENT (12)

(54) Apparatus for Removing Stumps

(72) Randle, Rae - Canada ;

(73) Same as inventor

(57) 7 Claims

Notice: This application is as filed and may therefore contain an incomplete specification.

Canada

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ABSTRACT OF THE DISCLOSURE

An apparatus for removing tree stumps consisting of a splitter element with at least two gripping members disposed on opposed sides of the splitter element. An hydraulic ram is provided for driving the splitter element into a tree stump such that the tree stump is split into at least two pieces. Hydraulic cylinders are provided for powering the gripping members to grip and remove the pieces of the tree stump.

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The present invention relates to an apparatus for removing tree stumps.

5 BACKGROUND OF THE INVENTION

When loggers have finished logging operations in a forest, there remains a sea of tree stumps which must be removed before the land can be properly reforested or used for agricultural purposes. These tree stumps have proven to be difficult to remove. The present procedure of using a bulldozer to uproot the tree stumps has proven unsatisfactory as it scars the land and mixes clay with rich top soil. Once the tree stumps are removed they have proven difficult to burn due to the large amount of soil which adheres to the stump.

SUMMARY OF THE INVENTION

What is required is an apparatus for removing tree stumps.

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According to the present invention there is provided an apparatus for removing tree stumps which is comprised of a splitter element with at least two gripping members disposed on opposed sides of the splitter element. Drive means are provided for driving the splitter element into a tree stump such that the tree stump is split into at least two pieces. Drive means are provided for powering the gripping members to grip and remove the pieces of the tree stump.

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When a tree stump is split into pieces it does not hold the soil to the same extent and becomes much easier to remove. The hole left by the removal of the tree stump is much smaller than it otherwise would have been. With the soil broken away, the pieces become much easier to burn.

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BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the invention will become more apparent from the following description in which reference is made to the appended drawings, wherein:

FIGURE 1 is a longitudinal section view of an apparatus for removing tree stumps constructed in accordance with the teaching of the present invention.

FIGURE 2 is a transverse section view of the apparatus for 5 removing tree stumps illustrated in **FIGURE 1**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention an apparatus for removing tree 10 stumps generally identified by reference numeral 10 will now be described with reference to **FIGURES 1** and **2**.

It is preferred that apparatus for removing tree stumps 10 be constructed for attachment onto a backhoe (not shown), 15 although it will be appreciated that it could be constructed as an independent unit. The configuration of apparatus 10 varies depending upon whether it is intended to be attached to a large machine or a small machine. Apparatus 10 was developed for use on a small backhoe and that embodiment is the one 20 illustrated. Referring to **FIGURE 1**, apparatus 10 has a tubular barrel housing 12. Tubular housing has a first end 13 and a second end 15. First end 13 of housing is pivotally mounted to a boom of a backhoe at mounting point 11. splitter element 14 is telescopically received within housing 12, and is movable 25 between an extended position extending from second end 15 of housing 12 and a retracted position retracted within housing 12. It will be apparent from **FIGURE 2**, that the preferred form of splitter element 14 has four radial blades 16. Four gripping members 18 are pivotally attached to an annual collar 30 25 at second end 15 of housing 12. When splitter element 14 is in the extended position gripping members 18 are disposed circumferentially around splitter element 14. An hydraulic ram 20 is provided as drive means for driving splitter element 14 telescopically in and out of housing 12, between the extended 35 and retracted positions. The movement of splitter element 14 in and out of housing 12 is aided by blade guides 22 which are disposed on an interior surface 24 of housing 12. Hydraulic

cylinders 26 serves as drive means for powering gripping members 18.

The use and operation of apparatus for removing tree stumps 10 will now be described with reference to FIGURES 1 and 2. When used with small machines gripping members 18 are used to grip a tree stump. Hydraulic ram 20 is then used to drive splitter element 14 into the tree stump such that the tree stump is split into four pieces by the four blades 16. By holding the stump in a vise-like grip, gripping members 18 prevent the backhoe from lifting as hydraulic ram 20 is used to drive splitter element 14 into the tree stump. The boom of the backhoe is then used to raise apparatus 10, tree stump and all. As the boom of the backhoe is raised gripping members 15 grip the pieces of the tree stump so they are removed by movement of the boom. When a tree stump is encountered that is difficult to split, pivotal mounting point 11 permits apparatus 10 to be rocked back and forth to work the blade further into the tree stump. Pivotal mounting point 11 can 20 also be used to adjust the angle of attack of splitter element 14 or gripping members 18 to suit particular tree stumps. With splitter element 14 in a retracted position, gripping members 18 can be used to clear deadfall.

When a large machine is used hydraulic ram 20 is not required. The boom from the large backhoe can be used to drive splitter element 14 into the tree stump. The larger backhoes have sufficient weight that there is no fear of them lifting, they must merely put the blade down on top of the tree stump 30 and exert a driving force through their boom. In this configuration, the splitter member can be fixed in position and need not be movable between the extended and the retracted positions.

It will be apparent to one skilled in the art that modifications may be made to the illustrated embodiment without

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**departing from the spirit and scope of the invention as defined
by the claims.**

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY
OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

- 5 1. An apparatus for removing tree stumps, comprising:
 - a. a splitter element;
 - b. at least two gripping members disposed on opposed sides of the splitter element;
 - c. drive means for driving the splitter element into a
- 10 tree stump such that the tree stump is split into at least two pieces; and
 - d. drive means for powering the gripping members to grip and remove the pieces of the tree stump.
- 15 2. The apparatus for removing tree stumps as defined in Claim 1, the splitter element having four radial blades whereby the tree stump is split into four pieces.
- 20 3. The apparatus for removing tree stumps as defined in Claim 1, having four gripping members.
4. The apparatus for removing tree stumps as defined in Claim 1, the splitter element being disposed in a tubular barrel housing and being telescopically movable along guides in and
- 25 out of the housing.
5. The apparatus for removing tree stumps as defined in Claim 1, the splitter element being adapted for mounting on a backhoe such that the backhoe serves as the drive means for driving the
- 30 splitter element into a tree stump.
6. The apparatus for removing tree stumps as defined in Claim 5, the splitter element being pivotally mounted on the backhoe such that angle of attack of the splitter and gripping members
- 35 can be altered.

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7. An apparatus for removing tree stumps, comprising:
 - a. a tubular barrel housing;
 - b. a splitter element having four radial blades disposed within the housing and telescopically movable in and out of the housing;
 - c. four gripping members attached to the housing and disposed circumferentially around the splitter element;
 - d. drive means for driving the splitter element into a tree stump such that the tree stump is split into four pieces; and
 - e. drive means for powering the gripping members to grip and remove the pieces of the tree stump.

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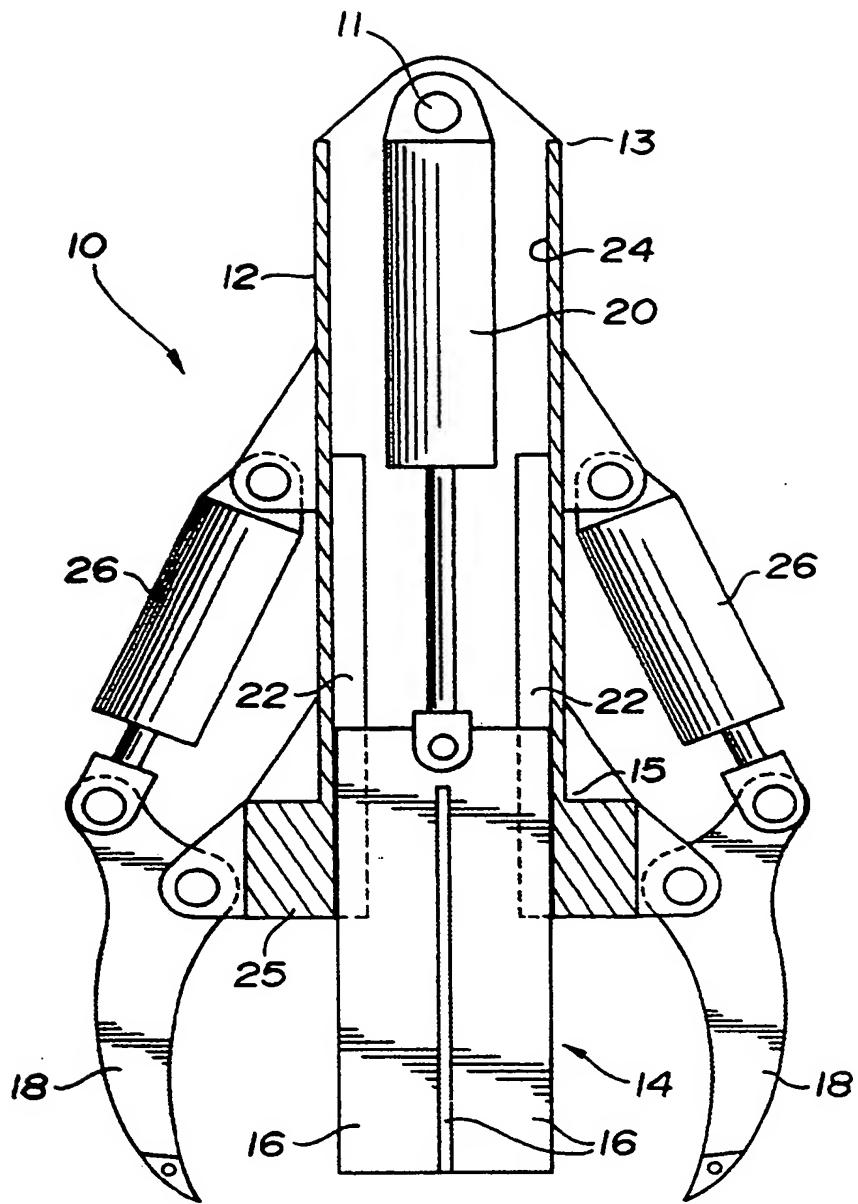


Fig. 1.

DOUGLAS B. THOMPSON
PATENT AGENT

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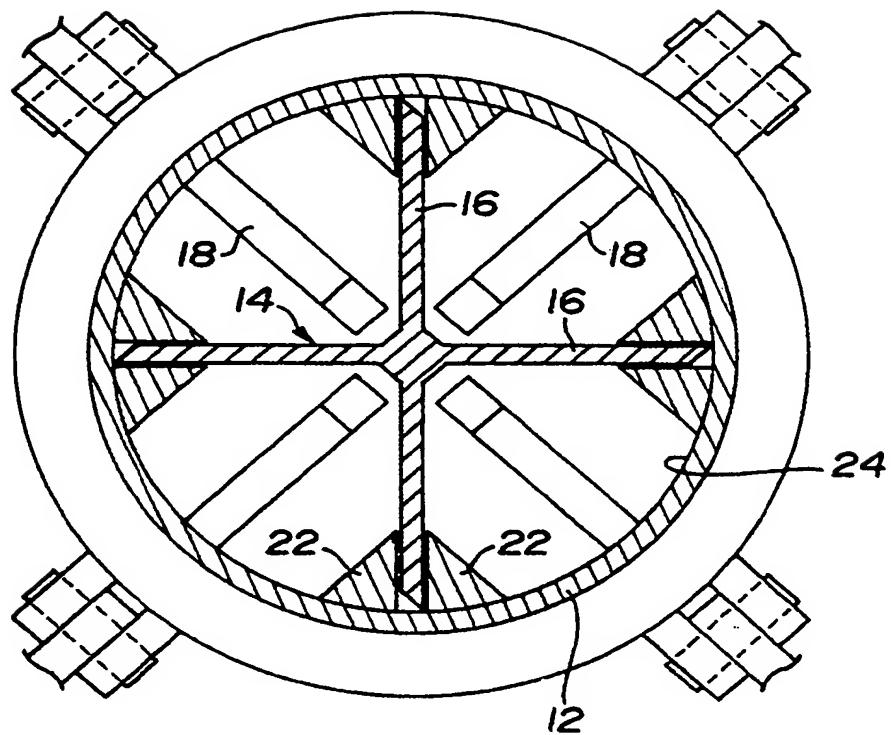


Fig. 2.

DOUGLAS B. THOMPSON
PATENT AGENT